



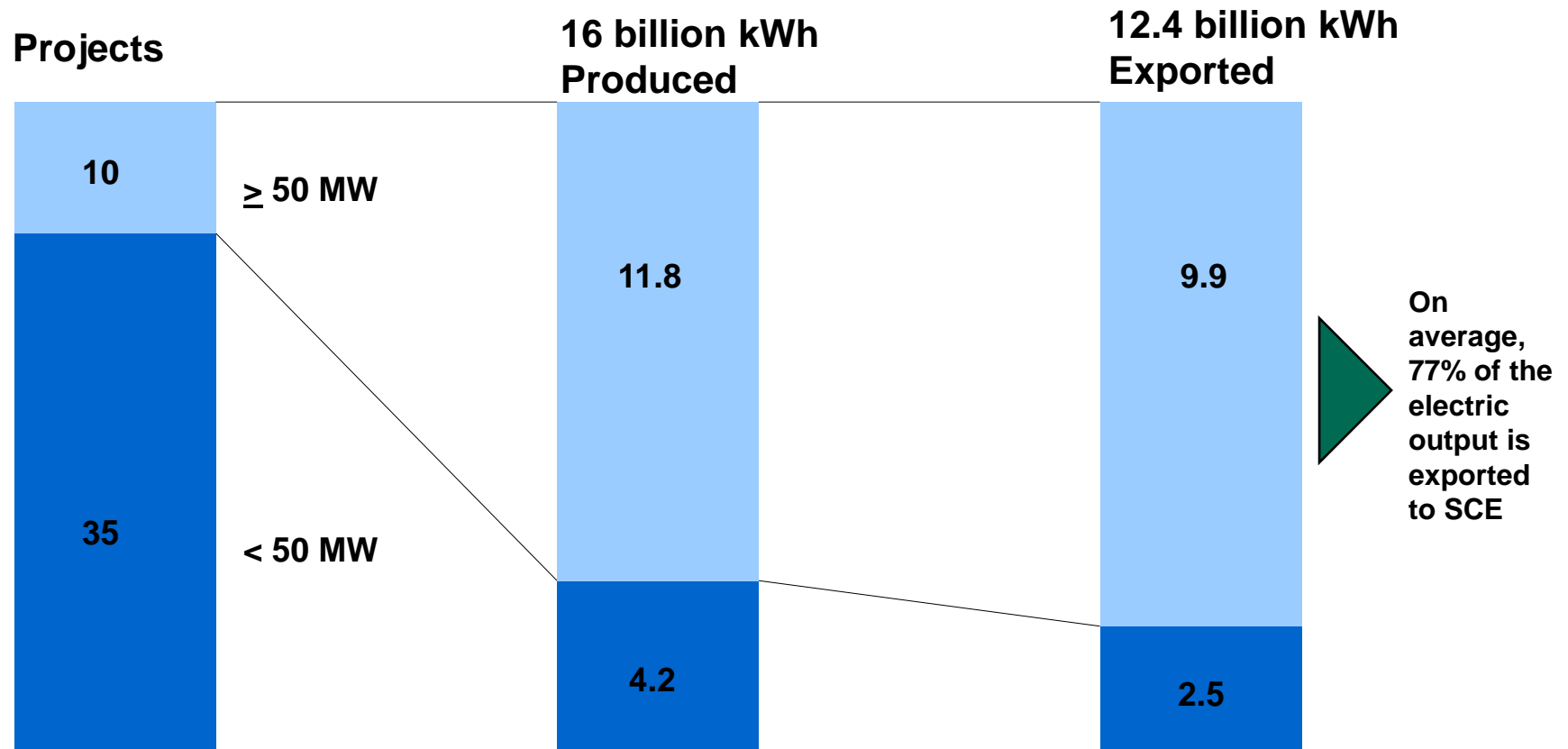
# ***SCE Cogeneration Portfolio***

**CEC Workshop**  
**April 13, 2009**

# SCE's Cogeneration Portfolio Varies Substantially by Efficiency and Operation

- 2,200 MW of CHP: sized from 32 kW to 416 MW
  - Industrial facilities, manufacturing plants, oil refineries
  - Small commercial buildings, schools, universities
  - Wastewater treatment plants
- Efficiency ranges from 34% to 89%
  - Half of projects operate at or below 60% efficiency
  - Four projects operate at or above 80% efficiency
- System sizing
  - One third of the projects serve their on-site load or have incidental export (less than 6%)
  - One third of the projects export more than 50% of their generation
- Types of CHP
  - Topping cycle (90% of reporting projects)
    - Digester, natural gas, coal fired
  - Bottoming cycle (10% of reporting projects)

# CHP Production and Exports



# Payments for Energy and Capacity

Technology	On-line dedicated firm and as-available capacity	Energy deliveries (GWh)	Payments (\$ in millions)	Average prices for energy and capacity (cents /kWh)
Biomass	174	1,256	\$112	8.92
Cogeneration	1,839	12,396	1,164	9.39
Geothermal	906	7,611	620	8.15
Small Hydro	94	196	12	6.12
Solar	354	667	108	16.19
Wind	1025	2,374	186	7.83
<b>TOTAL</b>	<b>4392</b>	<b>24,500</b>	<b>2202</b>	<b>8.99</b>

As published in the Edison International 2007 Financial & Statistical Report, at p. 25.

# Efficiency is Not Limited by Size or Operation

Size	Efficiency	Industry	Operation	Export
1.3 MW	89%	Government	Heating and cooling for multiple buildings	Incidental 6% or less
48 MW	86%	Refinery	Refinery process	Serves all on-site load (occasional export)
.2 MW	80%	Government	Heating for pool, spa, and surrounding buildings	Incidental 2.5% or less
50 MW	43%	Food products	Manufacturing process	100% export
31 MW	43%	School	Heating for multiple buildings, kitchens, and pool	97% export
.55 MW	39%	Wastewater treatment plant	Sewage treatment	Serves all on-site load
16 MW	34%	Wastewater treatment plant	Wastewater treatment plant	Incidental - 2% or less